

(5) Summary of Claimed Subject Matter

The claimed subject matter is directed to methods for enhancing cognitive function and alleviating mental fatigue in a subject comprising administering Ginkgo complexed with phospholipid. The phospholipid comprises 10-50% phosphatidylserine. The methods can improve memory speed and memory quality and counteract cognitive fatigue in normal healthy persons, or prevent deterioration of memory speed in people with decreased cognitive functions. The claimed subject matter is also directed to methods for treating diseases related to reduced cognitive function and mental fatigue such as dementia and Alzheimer's disease. (specification, Abstract, page 3, lines 16-26, page 4, lines 1-5, and page 5, lines 10-13).

Ginkgo is believed to have nootropic properties and has been used as a memory and concentration enhancer. Extracts of *Ginkgo* leaves contain flavonoid glycosides and terpenoids and the active components of Ginkgo are alkylated phenols such as ginkgol and 3-(8-pentadecenyl) phenol, and phenolic carboxylic acids such as 2-hydroxy-6-(8-pentadecenyl) benzoic acid, ginkgolide and bilobalide (page 1, lines 12-18).

There have been a variety of studies on the influence of *Ginkgo biloba* extract on cognitive performance

(page 2, lines 15-24). The effects according the presently claimed methods, however, are superior to those previously described in the art.

The present inventors determined that a *Ginkgo biloba* extract complexed with phosphatidylserine can significantly enhance cognitive function and reduce mental fatigue to a greater extent than that provided by a combination of non-complexed phospholipid and ginkgo extract. The production of the complex provides new structures with ginkgo extracts which retain the unaltered structure of the compound but exhibit a several-fold increase in specific activity (page 9, lines 14-21).

The present invention refers to the use of Ginkgo complexed with phosphatidylserine (Ginkgo-PS). The Ginkgo-PS complex is obtained from a reaction of the active ingredients of an extract of ginkgo with a phospholipid containing phosphatidylserine (page 6, lines 14-21, page 9, lines 10-13). The resulting complex exhibits a greater activity as compared to Ginkgo in free form and is suitable for incorporation in most common pharmaceutical formulations (page 9, lines 2-4).

Mapping of the Independent claims

Claim 23: A method for the enhancement of cognitive function and alleviation of mental fatigue, said method comprising: administering, to a subject in need thereof, *Ginkgo* complexed with a phospholipid containing 10 to 50% of phosphatidylserine. Support for each feature of claim 23 can be found in the specification at page 3, lines 16-23; and page 8, lines 7-9.

Claim 35: A method for the enhancement of cognitive function and alleviation of mental fatigue by improving the speed of memory and memory quality, by counteracting cognitive fatigue in normal, healthy persons or by preventing deterioration of the speed of memory in people with decreased cognitive functions, said method comprising administering, to a subject in need thereof, an effective amount of a *Ginkgo* complexed with phosphatidylserine. Support for each feature of claim 35 can be found in the specification at page 4, lines 6-13; page 3, lines 24-26; and page 8, lines 7-9.

Claim 36: A method for the treatment and prevention of a disease related with the reduction of cognitive function and mental fatigue, said method comprising administering, to a subject in need thereof, an effective amount of a *Ginkgo* complexed with

phosphatidylserine. Support for each feature of claim 36 can be found in the specification at page 3, lines 16-23; and page 8, lines 7-9.